

7th International Conference on
Infectious Diseases: Control and Prevention

May 26-27, 2023 | London, UK

The effects of exogenous glutathione on antibiotic resistant bacteria

Dong H. Kwon,

Long Island University, USA



Abstract:

Antibiotic resistance is a major global healthcare problem. In 2019, estimated 4.95 million deaths were associated with antibiotic resistance infections including 1.27 million deaths attributable to antibiotic resistance. To reduce antibiotic resistance a new antibiotic or strategy is an urgent priority in bacterial infections. Glutathione (GSH) is a biogenic thiol-compound for an optimal intracellular redox-potential required for various normal cellular processes. Antibacterial activity of exogenous (extracellular) GSH has been reported in some clinical isolates of bacterial pathogens but its molecular details are currently unclear. We have studied the effects of exogenous GSH on antibiotic susceptibility in clinical isolates of *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, and methicillin-resistant *Staphylococcus aureus*. Our results concluded that i) exogenous GSH exhibited antibacterial activity regardless of antibiotic resistance (or susceptibility), ii) the antibacterial activity of GSH synergistically enhanced susceptibility of conventional antibiotics, and iii) GSH-mediated acidity was substantially associated with the antibacterial activity of GSH. These findings suggest that GSH may be a potential antibacterial agent or an adjuvant for conventional antibacterial regimens.

Biography

Dr. Kwon's research has centered on pharmaceutical biotechnology focusing on molecular details of drug resistance and susceptibility mechanisms. The overall goal of his research is to develop a new drug and a novel strategy to treat drug-resistant bacterial pathogens. He has studied the bacterial pathogens causing infections of bloodstream, urinary tract, respiratory system, and gastric ulcers/cancers. These bacterial pathogens readily acquire resistance to multiple antibiotics and become a major public health problem worldwide. Dr. Kwon was educated at Georgia State University (Atlanta, GA, USA) and Baylor College of Medicine (Houston, TX, USA). He worked as a faculty member at Baylor College of Medicine before moving to Long Island University (Brooklyn, NY, USA).

Received: December 28, 2022; **Accepted:** December 30, 2022; **Published:** May 26, 2023